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THE PROPOSED ADDITION  
OF  
HYDROPOWER UNITS AND A REREGULATION  
FACILITY TO THE CORPS OF ENGINEERS'  
LIBBY DAM PROJECT IN  
LINCOLN COUNTY, MONTANA

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## PREFACE

Concerns over the present operation of outflows from Libby Dam and opposition to the proposed addition of four generating units and a re-regulating facility have recently been expressed by northwestern Montana residents. Governor Judge, Lieutenant Governor Schwinden, Senator Hatfield and Congressman Baucus have received numerous requests to initiate or support a reevaluation of present operating criteria for Libby Dam and to reconsider the state's position with regard to the proposed project.

A group of public organizations opposed to the project filed suit against the Corps of Engineers, claiming that the Corps has not adequately justified the project and that the project is not Congressionally authorized. The preliminary judgement of Federal Judge Murray is that the project is not authorized and, as a result, an injunction was granted and a halt to construction was ordered.

In response to many requests, questions and opposition, a few key state departments have researched seven relevant issues and the findings of their coordinated efforts are herein presented.



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## BACKGROUND

The Kootenai River enters Montana from British Columbia. It flows south for approximately 50 miles, turns abruptly to the northwest, into Idaho, and eventually into British Columbia again, where it empties into the Columbia River. Its somewhat V-shaped journey through Montana is roughly 100 miles long and is entirely within Lincoln County. Its average annual discharge is 12,000 cfs, making it the state's second largest river. Only the Clark Fork of the Columbia River discharges more water out of Montana.

The Flood Control Act of 1950 (Public Law 516) authorized the construction of Libby Dam on the Kootenai River. Its primary purposes are for hydropower generation and flood control.

Construction of the dam began in 1966 and the reservoir began filling in 1973; however, it was not until 1975 that power was first generated at Libby Dam and since that time all outflows from the reservoir have passed through the turbines.

Presently, the powerhouse in Libby Dam has four generators, each with a rated capacity of 105 megawatts (MW). The power operation is characterized as a "load shaping" mode of generation. Load shaping, according to the Corps of Engineers, is a flexible, middle ground between base and peak load generation. When the mode of power generation resembles, or in fact is a peaking operation, outflows from Libby Dam create the most pronounced fluctuations in the river stage downstream.

Libby Dam was constructed with provisions for eight 105 megawatt generators. With four additional generators (units five through eight), as proposed, peaking capabilities would be increased. However, a total of eight generators, permitting a combined rated capacity of 840 MW, would require a reregulating facility to smooth the great fluctuations that would result from such a peaking operation.

In January 1970, basic design information regarding the proposed reregulatory facility was presented in the Corps' Design Memorandum 50. The dam would be constructed 10 miles below Libby Dam. It would be 70 feet high, 1,600 feet long and create a reservoir with a capacity of 30,000 acre-feet of water. The reservoir's maximum surface area would be 1,350 acres. The estimated cost of additional units and a reregulating facility is \$225 million and the proposed project was to have been completed in 1983.

With a reregulating facility, the average daily releases from Libby Dam would be in the range of 5,000 to 9,000 cfs, April through mid-July. With Lake Koocanusa filled by the end of July (maximum elevation, 2,459 feet), outflow into the reregulating reservoir would be gradually increased to an average of approximately 20,000 cfs. Natural inflow into Lake Koocanusa would normally pass through Libby Dam until it drops below 8,000 cfs. In most years, this occurs during October. Discharge from Libby Dam would average 10,000 to 20,000 cfs through the winter while the reservoir is lowered in the interest of power production and to provide space for the upcoming snowmelt.

Instantaneous discharge, on the other hand, would vary from almost zero flow to as much as 45,000 cfs. In fact, if its full peaking capacity is utilized, the discharge could rise from almost zero flow to 45,000 cfs in one hour, remain at 45,000 cfs for five to ten hours and return to almost zero within an hour. Generally, peaking operations would be high during the day time and low at night. At certain times, perhaps weekends, the peaking requirements will be less and the discharge could be held relatively constant for several days.

The minimum discharge from the reregulating dam has been established as 2,000

cfs. Tailwater fluctuations would be limited to a maximum of one foot per hour, but not more than four feet per day during the period of May through September; and to a maximum of one foot per half hour, but not more than six feet per day during the period of October through April. These constraints are the same as those imposed at Libby Dam with four units operating.

The energy produced by any hydropower source depends upon the volume of water passing through the turbines and the elevation difference, or head, between the reservoir level and the river level below the dam. Since the addition of four generators to the Libby Dam powerhouse changes neither the inflow to the reservoir nor the head, eight generators will not produce more energy than the four existing generators over extended time. Additional generators will, however, produce more energy over a relatively short-lived peak electrical demand period (i.e. one to as many as twelve hours).

In July 1973, the Corps' Seattle District Engineers recommended to the Senate Public Works Committee that generators be incorporated into the design of the reregulating dam. Phase I studies for advanced engineering and design for that purpose were authorized by the Water Resources Development Act of 1974 (Public Law 93-29). Congressional authorization for the inclusion of power generators in the reregulating dam, however, is still pending. Indeed, Congressional authorization for the reregulatory facility itself could not be demonstrated to the satisfaction of Federal Judge Murray, who recently granted a preliminary injunction and ordered a halt to all construction activities associated with the reregulatory project. The Corps had claimed that the project was authorized in 1950 as part of authorization for the Libby Dam Project.

The question of authorization, the question of a real need for additional peaking power in the northwest United States, the uncertainty as to what impacts a reregulating facility will have on the endangered bald eagle, the wisdom of inundating ten more miles of the Kootenai River, the adequacy of existing wildlife and fishery mitigation plans, and the long term effects of fluctuation criteria portray the controversy over the reregulating dam and additional generating units at Libby Dam.

Summaries of these important issues follow and they represent a coordinated state response to the controversy.



## SUMMARY OF ISSUES

The summaries presented in the following pages do not include references to the sources from which necessary information was obtained. Appropriate references are given in the appendices, which also present the issues in a more detailed manner.

### Economics

This critique of the Corps' benefit cost analysis concludes that (1) additional peaking capacity will be of little or no value for about seven years after the project is scheduled to be operational (2) the deliberate omission of archeological costs from the B/C analysis understates project costs (3) project benefits are overstated because peaking capacity available without the project is counted as a benefit of the project and (4) recreational losses due to the project were not adequately considered.

Current standard procedures for estimating the benefits of additional generating capacity require two separate evaluations. The first is to consult projected future power demands to determine if the projected demands from the regional power pool exceed the projected regional capacity by the output of the proposed project. For projects in the Pacific Northwest, the Corps uses projections supplied by the Pacific Northwest Utilities Conference Commission (PNUCC), a group of public and investor-owned utilities. If the first step in a project evaluation reveals that the projected capacity falls short of the projected demand, then the second step, an evaluation of alternative methods for meeting the projected demand, is performed. The purpose of the second evaluation is to determine whether the proposed project will produce power at a lower cost than the next best alternative. Since the economic benefits of a project are defined as the costs avoided by building the proposed project, rather than the next best alternative, any project that is cheaper than the next best alternative will have a benefit cost ratio greater than 1:1.

The PNUCC projections of future power demand are described by the Bonneville Power Administration (BPA) Role Environmental Impact Statement (1977) as follows:

In the Pacific Northwest, where virtually all utilities are either directly or indirectly interconnected with one another and with BPA whose facilities are in turn connected with the two federal agencies which own and operate the largest hydroelectric generating facilities in the region, load-resource planning is done for the region as a whole. Each year a forecast of the total loads of all the cooperating utilities together is juxtaposed in tabular form with the current schedule of existing, under construction, and planned generating resources to determine the potential need for additional new generating facilities beyond those already planned. The load-resource tables which extend 20 years into the future, are used to determine optimal size of such additional generation, the time that would be required to meet forecasted demands, whether the planned new facilities should provide peaking capacity or energy (or both), the general location of such new facilities, and whether they should be constructed and owned by the Federal Government, by investor-owned utilities, or by public agencies, or by some combination thereof.

The PNUCC projections define a peaking surplus as the capacity (net resources) available in the period of lowest recorded streamflow that is surplus to the highest one hour load to occur during the year after both capacity and load projections have been modified to allow for a substantial reserve margin. An average surplus is the capacity available after adjustments for reserves in the period of lowest recorded streamflow that is surplus to the capacity needed to produce the expected energy (kilo-

watt-hours) to be consumed during the year.

The most recent projections (1977) indicate that in the absence of the Libby project peak surpluses will be available through 1989-1990. This means that the value of even more surplus capacity is near zero because it can only serve to provide additional reserves to a system with very substantial reserve margins already built in.

The past three years' projections of future power demands, as presented by the PNUCC in 1975, 1976 and 1977, show that (a) there is a steady decline in the load demands projected for the period of 1978-1990, (b) there is a steady decline in the net resources<sup>1</sup> projected for the same period and (c) there is an increase in the peaking capacity surpluses projected for the same period. The projected surpluses of peaking capacity have resulted because the load demand projections are declining faster than the projected net resources. For example, the surplus of peaking capacity projected in 1975 for the period 1982-1983 was 338 MW; however, more recent projections (1977) show that a surplus of 1278 MW will exist in 1982-1983.

Table 1 shows projected surpluses and deficits of net firm resources, as projected by the PNUCC. The values shown are the differences between projected load demands and projected net resources.

TABLE 1

PNUCC PROJECTIONS OF POWER SURPLUSES MADE IN 1975, 1976 AND 1977  
(MW)

| Period | Projected Peak Surpluses (deficits) |         |       | Projected Average Surpluses (deficits) |         |         |
|--------|-------------------------------------|---------|-------|--|---------|---------|
|        | 1975                                | 1976    | 1977  | 1975                                   | 1976    | 1977    |
| 78-79  | 2,025                               | 2,025   | 3,108 | (2,153)                                | (2,297) | (1,060) |
| 79-80  | 2,508                               | 2,508   | 3,410 | (2,232)                                | (2,376) | (1,598) |
| 80-81  | 1,606                               | 1,566   | 2,395 | (2,353)                                | (2,517) | (2,139) |
| 81-82  | 927                                 | 887     | 2,406 | (2,419)                                | (2,592) | (2,198) |
| 82-83  | 338                                 | 298     | 1,278 | (2,522)                                | (2,696) | (2,275) |
| 83-84  | 2,254                               | 2,214   | 1,957 | (1,089)                                | (1,263) | (2,373) |
| 84-85  | 239                                 | 199     | 2,654 | ( 941)                                 | (1,115) | (1,085) |
| 85-86  | 706                                 | 666     | 3,306 | ( 467)                                 | ( 641)  | ( 779)  |
| 86-87  | 86                                  | 46      | 3,145 | ( 447)                                 | ( 621)  | ( 450)  |
| 87-88  | ( 704)                              | (1,982) | 3,461 | ( 283)                                 | (1,443) | ( 598)  |
| 88-89  | (2,993)                             | (3,003) | 1,792 | (1,394)                                | (1,771) | (1,292) |
| 89-90  | (5,389)                             | (5,409) | 987   | (2,592)                                | (2,808) | (1,678) |

SOURCES: Power Planning Committee, PNRBC, "Review of Power Planning in the Pacific Northwest Calendar Year 1975" p. 96 and "Review of Power Planning in the Pacific Northwest Calendar Year 1977", p. 68, BPA Role EIS, page V-228.

<sup>1</sup>Net resources are gross resources minus reserve requirements and other capacity adjustments. Gross resources are the combined capacity of all generating plants in the power pool. Reserve requirements and other adjustments are subtracted because gross resources are not always available due to lowered streamflows, plant maintenance, and other factors.

Table 1 indicates that the period from 1978-1990 is projected to have surpluses of peaking capacity and deficits of average energy.

Due to a revision in 1975 by the Federal Power Commission (now the Federal Energy Regulatory Commission) of the method for calculating hydropower benefits the B/C ratio dropped below 1.0. Because a project can't receive federal funding unless project benefits exceed costs the Corps began a search for cost-cutting measures. In addition trimming non-essential project features, archeological costs were deleted from the tabulation of costs. This was defended by noting that they are non-reimbursable costs. This is a violation of the federal guidelines for economic analysis and basic economic principles and produces an understatement of true project costs.

The benefits of converting Libby Dam to peaking operations are the value of the peaking power gained minus the value of power from current operations that is lost. The value of the proposed operation and the current operations are measured by the least-cost alternatives to these operations. Although the current operations at Libby Dam are semi-peaking because output during peak hours is often several times greater off-peak output the Corps selected as the least-cost alternative to current operations a nuclear plant. Nuclear plants are typically used only for baseload operations because capital costs are very high and operating costs are low and a change in power output takes several hours.

The selection of a nuclear plant as the least-cost alternative assumes that currently Libby Dam produces only baseload power and incorrectly calculates the benefits of the proposal as the difference in power values between a baseload plant and a peaking plant. If the project were needed the benefits would only be the difference between the power values of a semi-peaking operation and a peaking operation rather than the difference between baseload and peaking operations. The method used by the Corps incorrectly counts current peaking benefits from the existing semi-peaking operation that are available in the absence of the project as benefits of the project.

The Corps also failed to adequately consider the recreational losses would result from the inundation of 10 more miles of the Kootenai River. Recreators would surely be displaced, being forced to seek an alternate site--perhaps a less desirable one. Other recreational losses would include those associated with the blockage of the Fisher River and those related to option values. Those who would pay for the option of future use, even though they may not be present users, should be considered. Certainly those who pass and sign petitions protesting the project would suffer option losses if they are not regular users. Active opposition by the Libby Rod and Gun Club, among others, clearly indicates that many local residents believe they would suffer a substantial loss if the project is built.

### Endangered Species

The Endangered Species Conservation Act of 1969 and the Endangered Species Act of 1973 afford protection to plant and animal species deemed by the Secretary of the Interior or the Secretary of Commerce as endangered or threatened with extinction. Section four of the latter gives final authority for the determination of a plant or animal as an endangered species to the Secretary of the Interior.

Notification of the addition of the bald eagle to the federal endangered species list became formal on March 16, 1978. While the bald eagle has not yet been given special designation under Montana's own endangered species provisions, it is anticipated that the 1979 Legislature may do so.

The recent designation of the bald eagle as an endangered species has resulted in the need to examine more closely the activities associated with the construction of the reregulating dam below Libby Dam.



Section seven of the Endangered Species Act requires a formal, interagency consultation process in the event that man-induced activities might in any way produce adverse impacts on a threatened or endangered species. It reads:

The Secretary of the Interior shall review other programs administered by him and utilize such programs in furtherance of the purpose of this Act. All other Federal departments and agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of such endangered species and threatened species which is determined by the Secretary, after consultation as appropriate with the affected States, to be critical (Section 7, P.L. 93-205, December, 1973).

In accordance with Section seven, the U.S. Army Corps of Engineers initiated a formal consultation process with the Fish and Wildlife Service on February 22, 1978. The Corps of Engineers requested a biological opinion regarding the impacts of construction of the proposed additional generating units and reregulating facility near Libby on the bald eagle.

The Regional Director of the Fish and Wildlife Service in Denver was delegated the authority of responding to the Corps' request. Following a preliminary examination, it was concluded that insufficient information was available to permit a sound biological opinion as to whether or not the additional generating units and reregulating dam "...will jeopardize the continued existence of the endangered bald eagle or result in the destruction or adverse modification of its habitat." The Fish and Wildlife Service therefore requested the Corps to provide specific information regarding the number of eagles in the area, their nesting, perching, and feeding habits and their seasonal movements. In response, the Corps has contracted Dr. John Craighead of Missoula to perform studies at the site and provide the information required. However, Dr. Craighead's results will not be available until April or May, 1979, and another 60 days may be required for the Fish and Wildlife Service to evaluate those findings and submit its biological opinion to the Corps.

The federal regulations that establish procedures for interagency consultation in accordance with Section seven of the Endangered Species Act of 1973, state:

Until consultation has been completed and a biological opinion issued, good faith consultation shall preclude a Federal agency from making an irreversible or irretrievable commitment of resources which would foreclose the consideration of modifications or alternatives to the identified activity or program." (Part 402, Chapter IV, Title 50 of the Code of Federal Regulations).

In spite of the obviously unsettled nature of the formal consultation process, the Corps of Engineers has sought to begin construction activities that are directly related to the reregulation dam project. A request was submitted to the Regional Director of the Fish and Wildlife Service to consider construction of the haul bridge as an activity separate from all other scheduled construction activities. In brief, it was concluded by the Fish and Wildlife Service that construction of the haul bridge alone would probably have minimal impact on the bald eagle or its habitat. The requirements of Section 404 of the Federal Water Pollution Control Act were then met, and work on the haul bridge began following a 51-day delay of the regular construction schedule.

The haul bridge will be a temporary structure with the single purpose of allowing for the transport of fill material, personnel and supplies needed for construction

of the reregulating facility. Its cost to taxpayers will be slightly in excess of \$2½ million.

To what extent the Corps of Engineers will attempt to carry out other activities related to the construction of additional generating units and the reregulating facility is speculative at this point. But, the decision to proceed with the haul bridge is an indication that a piecemeal approach may be forthcoming. Such an approach would be in conflict with the intent of the Endangered Species Act and that portion of the Code of Federal Regulations which establishes procedures for good faith inter-agency consultation and a biological opinion before an irreversible or irretrievable commitment of resources is made.

#### Fluctuation Criteria and Discharge Limits

Presently, operation of the four 105 megawatt generators in Libby Dam is restricted by the following discharge limits and maximum fluctuation criteria:

1. A minimum instantaneous discharge of 2,000 cfs.
2. Maximum fluctuations of one foot per hour, four feet per day, May through September; two feet per hour, six feet per day, October through April.

According to representatives of the Corps of Engineers, those fluctuation criteria and discharge limits were established following consultations with the Bonneville Power Administration, the U.S. Fish and Wildlife Service and the Montana Department of Fish and Game. The criteria are admittedly a compromise.

Originally, the Fish and Wildlife Service, in concurrence with the Department of Fish and Game, recommended the following discharge limits and maximum fluctuation criteria:

1. A sustained flow in the Kootenai River of not less than 2,500 cfs (as measured at the dam).
2. A rate of change of water releases should be made as gradually as possible and should not exceed 1 foot per hour as measured at a point just upstream from the confluence of the Fisher River.

These recommended criteria, according to the Fish and Wildlife Service, were intended to minimize the detrimental effects to aquatic organisms, as well as decrease hazards to anglers.

Streamflow records for the Kootenai River are available from 1911 through the present. The average annual discharge, as measured at Libby before impoundment was 12,070 cfs. The maximum recorded discharge was 121,000 cfs on June 21, 1916. The minimum was 895 cfs on January 11, 1930. Regulation of the outflow through Libby Dam has, of course, changed the seasonal flow patterns. In fact, a reversal of the natural flow regime is inherent in peaking hydropower operations and such a reversal has occurred below Libby Dam. With a reregulating dam, it is estimated that downstream flows during the period of November through March would be about 15,000 cfs higher than historical flows for the same period. The present operation of Libby Dam, which allows for peaking in the absence of a reregulating reservoir, is problematical and may in fact be in violation of earlier agreements. In any case, during the first two years of Libby Dam's operation, numerous violations of the criteria established by the Corps occurred.

Discharges from the main dam into the proposed reregulating reservoir would be determined largely by power generation schedules. With eight 105 megawatt generators in the main dam operating for peaking power production, those discharges would vary from a low of less than 1,000 cfs--sometimes almost zero flow--to as much as

50,000 cfs. (Historically, a flow of 50,000 cfs had a statistical probability of occurring once in 100 years). Up to 40,000-45,000 cfs will be released routinely into the reregulating reservoir.

Discharges from the proposed reregulating dam will apparently conform to those criteria established by the Corps and now in effect below the main dam. As stated previously, those criteria include a minimum discharge limit of 2,000 cfs.

The Corps has stated on numerous occasions, both orally and in writing, that flows below 4,000 cfs will occur infrequently or in emergency situations only. In its Design Memorandum 50, the Corps stated that a minimum flow of approximately 4,000 cfs will be considered below the reregulating dam during the summer months in order to maintain the aesthetic value of Kootenai Falls. Yet, in the same document, water release from the proposed reregulating dam during the summer is characterized in terms of being reduced from 46,000 cfs to 2,000 cfs in 49 hours 45 minutes.

Furthermore, in an invitation for bids for Phase I of reservoir clearing, a revised minimum discharge limit of 1,500 cfs was recently introduced by the Corps. The Fish and Wildlife Service, having received no forewarning, questioned the revised limit, and the issue was raised again at the last meeting of the Environmental Coordinating Committee, May 9, 1978. No response has yet been given. The intent or validity of 1,500 cfs as a newly established discharge limit is simply not known, but it is vital to this issue. Such inconsistencies should be clarified.

Throughout the Corps' planning process for additional generating units and regulation at Libby Dam, it has generally been feared that the reregulating dam and reservoir will not be used primarily for smoothing out the wild fluctuations caused by peaking operations. The Corps has attempted to allay this and other fears on numerous occasions and has responded to countless inquiries into its operating assumptions; however, the fears have not been allayed and questions continue to arise. Senator Hatfield's recent letters to the Governor of Montana and the Corps bear witness to these doubts.

The adequacy of the existing minimum discharge limit and maximum fluctuation criteria--from both an operational and environmental viewpoint--is unsettled. Within the last month, the Department of Fish and Game, based on experiences to date with fluctuations below Libby Dam, has revised its recommendation regarding maximum fluctuations and minimum discharge limits. Prompted by Senator Hatfield's query "Is Montana satisfied with the criteria?" the Department of Fish and Game has recommended:

1. Fluctuations not in excess of three feet per day, one-half foot per hour, year around
2. A minimum instantaneous discharge of 4,000 cfs
3. A steady flow three hours before sunset until dark and a steady flow during weekends, May through October.

The third recommendation was made to accommodate fishermen. The second is particularly important during the periods of April through June and October through November, as they represent the spawning periods of the most abundant fishes in the river and it is believed that continuous flows of at least 4,000 cfs will ensure inundation of spawning beds.

The timing of fluctuations is as important as the magnitude of those fluctuations--perhaps more important. The Corps has given assurances that the reregulating dam, whether equipped with generators or not, will permit peaking operations and that the resulting fluctuations below the reregulating dam will conform to the established cri-



teria. On the other hand, apparently no indication has been given by the Corps regarding the frequency with which the maximum fluctuation or minimum discharge limits will be attained by incorporating power into the reregulating dam. The terms "infrequently" and "emergency situations" do not adequately define frequency limitations. It is feared that emergency situations could arise in a peaking operation every week and be a weekend in duration. The State of Montana should not endorse maximum fluctuation criteria and minimum discharge limits that are, in fact, normal operating criteria.

### Mitigation for Fish and Wildlife Losses

Opposing views are held with regard to the mitigation of fish and wildlife losses associated with Libby Dam and the proposed reregulating facility.

The Corps of Engineers maintains the position that all fish and wildlife losses resulting from the project should be treated as a single issue. That is, the existing dam and the proposed dam are to be considered as a single project in terms of fish and wildlife mitigation measures.

The Montana Department of Fish and Game, on the other hand, with the concurrence of the U.S. Fish and Wildlife Service, maintains the position that fish and wildlife losses associated with the existing dam and any future losses resulting from the construction of a reregulating facility are separate issues. According to this position, after measures have been taken to mitigate losses already realized (i.e. losses realized as a result of Libby Dam), additional compensation for losses that would result from the construction of the reregulating facility will be necessary.

### Fisheries

Prior to impoundment, the Kootenai River was a good fishery along its entire length in Montana, capable of sustaining harvests far in excess of present or anticipated demands. The mainstem and nearly all of its tributaries of significant size were self-sufficient in terms of reproduction. And, although the Kootenai River received rather light fishing pressure, due largely to the area's low human population, it was classified as a Class two stream. Class two streams are those considered to possess qualities of statewide significance or value.

Since Libby Dam's construction, fishing below the dam has improved, particularly between Libby and the dam. Slightly warmer water temperatures, the elimination--or at least reduction--of natural and man-induced pollution from upstream, and the dam itself, acting as a barrier to the natural upstream movements of fishes, are a few factors to which improved fishing may be attributed. How long the condition will last is unknown.

On the other hand, Libby Dam has adversely affected the Kootenai River fishery upstream. A fluctuating reservoir with annual drawdowns ranging up to 175 feet and the flooding of 90 miles of the mainstem and roughly 14 miles of important tributary stream present conditions that favor rough fish. Past experiences with reservoirs such as Hungry Horse and numerous others support this feeling of pessimism.

Congressional authorization was given by the Omnibus Bill of 1974 for the mitigation of fishery losses associated with the Libby Dam project not to exceed \$4 million. The major portion of that money will be used to construct and operate a fish hatchery at Murray Springs.

It is agreed that the Department of Fish and Game will operate the hatchery under contract with the Corps of Engineers, but the length of time the Corps can fund the operation of the hatchery under the \$4 million appropriation is not known at present. The acquisition of land for the water supply is under a condemnation

proceeding, therefore its eventual cost is unknown. If the court determines a reasonable land price, then adequate funds should remain for 10 to 15 years of hatchery operation. Although the Corps supports the concept that additional funds should be provided for operating and maintaining the hatchery for the life of the Libby Dam project, it maintains that it is Montana's responsibility to seek the additional funding from Congress.

The Fisher River, which would be "cut off" between the main dam and the reregulating dam, should the latter be built, has traditionally been one of the most important tributaries of the Kootenai River. A vital spawning run for cutthroat trout, dolly varden, and whitefish will be lost. And with fluctuations of up to 30 feet during peaking operations at the main dam, the proposed reregulating reservoir will scarcely support viable populations of aquatic organisms. Another 10 miles of excellent river fishing will therefore be lost. And, if the Corps' position on mitigations is upheld, mitigation for losses already incurred and already deemed inadequate by the state must suffice for the proposed project as well.

### Wildlife

Lake Koocanusa inundated approximately 24,000 acres of prime bottomlands wildlife habitat. Much of it was critical winter range for big game species such as deer, elk, moose, and bighorn sheep; however, it was equally critical for numerous other game and non-game animals. The relocation of roads and railroads also produced adverse impacts on existing wildlife populations and their habitats.

The Omnibus Bill of 1974, which authorized \$4 million for fisheries mitigation measures, also authorized the purchase of up to 12,000 acres of land at a cost not to exceed \$2 million. Even if land had been purchased as early as 1974, it would have been difficult to purchase 6,000 acres of land with \$2 million. Today, the Corps is negotiating the purchase of little more than 3,000 acres and has thus far actually purchased a total of 1,375 acres north of Eureka at a cost of \$811,000.

As in the case of funding mitigative measures for fishery losses, the Corps maintains that once the \$2 million has been spent on land acquisitions, it is not authorized to seek additional lands or funds.

Although the Corps has assisted the Department of Fish and Game and the U.S. Forest Service in determining ways to improve the carrying capacity of lands for certain wildlife species, considerably more than 12,000 acres would be required to actually mitigate the 24,000 acres inundated by Lake Koocanusa alone. It must be recognized that wildlife already inhabit those lands being purchased. New wildlife habitat is not being created by such purchases. To fully mitigate the 24,000 acres inundated, 24,000 acres of new, comparable habitat would be necessary. However, a funding limit of \$2 million remains in effect, and it is apparent that little more than 3,000 acres can be purchased for that amount.

The purchase of 3,000 acres will not properly mitigate the loss of 24,000 acres of prime wildlife habitat to Lake Koocanusa. To presume that the purchase of the same 3,000 acres will properly mitigate all anticipated losses, including an additional 10 miles of bottomlands habitat, should the reregulating facility be built, is unreasonable.

The total cost of Libby Dam, as it stands, was approximately \$485 million. The estimated cost of adding four generating units and reregulating dam will be approximately \$225 million more. The \$6 million authorized for mitigating fish and wildlife losses--both incurred and anticipated--represents less than one percent of the total estimated cost of the project.



## Geology

Libby Dam and the proposed reregulating damsite are located on a geologic area known as the Wallace Formation. The main constituents of this formation are calcareous and dolomitic limestone.

Pleistocene ice was up to 4,000 feet thick in this region and today glacial sediments form the bulk of soil overburden. The Corps believes that these glacial deposits are rather constant and undisturbed and has stated that there has been little tectonic activity since the last glacial advance, some 10,000 years ago. The Corps has concluded that major faults in the area are inactive.

One of the major faults, the Thompson Lakes Fault, is under the west side of the proposed reregulating damsite, according to one reconnaissance level study. However, according to the Corps, the fault lies 1,500 feet east of the east riverbank, but has two branches under the proposed damsite.

The U.S. Department of Commerce has categorized the area as a "moderate damage earthquake potential zone", but much of the western United States is similarly categorized.

Dr. Richard Konizeski of the University of Montana contends that the Corps should have collected microearthquake data for one year before filling Lake Koocanusa (a microearthquake is one that registers less than 3.5 on the Richter scale). He further contends that a strong correlation exists between the filling of certain large reservoirs and the increased potential for earthquakes. While seismologists are generally not willing to accept the latter contention, they agree that seismologic data should be gathered before, during and after a large reservoir is formed.

The Corps has recently installed three stations that record microseismic activity in the Libby area. The greatest earthquake recorded within a seismologically significant radius of the proposed damsite registered 5.4 and was 20 to 30 miles southeast of Libby Dam. For this reason, the proposed reregulating dam has been designed to withstand a probable maximum earthquake of 5.5, within 12 to 14 miles of the damsite.

## Reserving Power Generated From Libby Dam for Montana

Two major hydroelectric dams have been federally funded and constructed in Montana--Hungry Horse Dam on the South Fork of the Flathead River and Libby Dam.

The records are clear and it has been established through both public law and Congressional intent that Montana should receive geographical power preference for the sale and distribution of energy produced by federal hydroelectric projects within Montana.

The preference to which Montana consumers are entitled in the sale of energy produced by the Hungry Horse Project was clearly implied in legislation which authorized the construction of the project. That legislation (Public Law 329) declared the purpose of the Hungry Horse Project to be:

...irrigation and reclamation of arid lands, for controlling floods, improving navigation, regulating the flow of the South Fork of the Flathead River, for the generation of electric energy, and for other beneficial uses, primarily in Montana but also in downstream areas ..." (emphasis added)

Other BPA and Congressional records are replete with reference to Montana's pre-

ference in this regard.

Recognition of Montana's preference in the sale and distribution of federal energy attributable to projects in the state was not intended to be limited to acts and determinations at the time the Hungry Horse Project was constructed. The Congress passed and the President signed legislation in 1963 to guarantee electric consumers in the Pacific Northwest first call on electric energy generated at federal hydroelectric plants in that region. Thus, legislative history supports the application of the state's geographical preference with respect to the second major federal hydroelectric project in western Montana--Libby Dam--and the additional energy that would be produced by the proposed units, should they become a reality, would surely be similarly intended.

#### Authorization

Libby Dam was constructed with provisions for eight generators. With the addition of proposed units five through eight, the plant would have an increased capability of supplying peaking power to Montana and the northwestern United States. However, a reregulating dam would be required.

According to the Corps, Congressional authority for the additional units and reregulating facility was granted at the same time Libby Dam itself was authorized--by the Flood Control Act of 1950. In the act, a single reference was made to a reregulating facility. It reads "if it becomes necessary to reduce this fluctuation, reregulation will be considered when the need arises" (House Document 531, Volume II, page 464. 81st Congress, 2nd Session).

A suit was filed by the Libby Rod and Gun Club and others challenging, among other aspects of the proposed project, that statement as being Congressional authorization.

On September 8, Judge W. D. Murray, Federal District Court, Butte Division, granted a preliminary injunction on the grounds that (a) the project is not, in his opinion, authorized and (b) the Corps failed to adequately consider alternatives to the project. Thus the decision has forced a halt on further construction and a trial date will be set.

## MONTANA OPTIONS

The preceding discussions have identified significant problem areas concerning the addition of hydropower units at Libby Dam and placement of a reregulating dam downstream. Montana can pursue a number of alternative measures in an attempt to ensure that the project represents the best interest of the State. Practically, however, it must be realized that Montana does not, and traditionally has not, played a major role in the planning, authorization, or construction phases of Corps projects--for good reasons.

The Corps of Engineers has claimed that its navigational servitude rights apply to this project, precluding the need for the Corps to follow any state permit procedures. At Montana statehood, the federal government retained the right to control navigable rivers, primarily for the purpose of interstate commerce. Development of federal water resource projects is one of the rights retained under navigational servitude.

In addition, federal projects are Congressionally authorized and funded. While Montana's Congressional delegates may influence those decisions, it is obvious that they do not have the full discretionary authority regarding federal projects in the state.

President Carter's water policy explicitly declares that states must have more control over the planning and construction of federal projects within state boundaries and has instructed federal departments to work more closely with states in developing water resource projects. Significantly, the president is also having legislation drafted that would require states to cost share these projects in the amount of 10 percent of construction costs, but not to exceed one-fourth of one percent of the state's annual revenues for projects producing vendible products (hydropower, for example). For most large projects, the percentage of state revenues would apply. Montana's share in such cases would be approximately \$500,000 per year. The policy, if implemented through legislation, would give states more control over the development of federal water resource projects, but it would apply only to projects not yet authorized. If the Corps can successfully defend its claim that the additional units and reregulating facility are authorized, presumably, cost sharing would not apply. If, on the other hand, a summary judgment is issued contrary to that claim, and assuming the Corps then seeks Congressional authorization, cost sharing provisions would probably apply. Cost sharing provisions would probably apply also to the proposed installation of generators in the reregulating dam.

The Corps has established an Environmental Coordinating Committee for the Libby project so that state and other federal agencies can monitor construction activities and suggest modifications based on environmental concerns. It is apparent to the state members of that committee that few, if any, suggested changes in project construction will be accommodated by the Corps.

The Department of Natural Resources and Conservation has issued an opinion regarding the applicability of the Montana Major Facility Siting Act to the proposed project. It was determined that the act does not apply to the proposed project under the allegations stated in a petition requesting the state's opinion. Nevertheless, the department is continuing legal research into the matter to determine whether other aspects of the proposed project, should it be authorized, would subject it to the Major Facility Siting Act.

The following options are based on the assumption that the proposed project is not Congressionally authorized.

### Option 1. Endorse the Project

This option endorses the addition of four more generators at Libby Dam, construction of the reregulating dam and the proposed construction and operating plans and environmental programs associated with the project.

The issue papers have identified serious problems associated with the project that must be accepted if the project is endorsed. These include concerns over recreational losses, mitigation of environmental damage, and the determination on whether the project is really needed. Endorsement of this option assumes that regional concern for additional peaking power production and local interests in construction employment outweigh the problems associated with the project and that the environmental issues do not merit further consideration.

Effective endorsement of the project could include support of Congressional authorization and efforts to hasten the EIS process associated with the Major Facility Siting Act if it should apply.

### Option 2. Condition Endorsement on Possible Modifications

This option assumes that additional peaking capacity and/or local construction employment is needed and attempts to accomplish these goals with minimal environmental degradation. Completion of the eagle study, a reevaluation of fluctuation criteria and a review of mitigation measures associated with the project should be completed before the state supports the project. State support would be contingent upon acceptance of state recommendations arising from the studies mentioned above.

Implementation requires initiation of the studies that will determine the conditions upon which state support will depend. The reevaluation of fluctuation criteria should identify the tradeoffs between the economic value of the peaking power and the environmental and recreational benefits to be gained by reducing fluctuations.

Mitigation of fish, wildlife, and recreation losses due to the reregulating dam and reservoir has never been satisfactorily resolved. A "habitat unit" type of evaluation could be prepared by the Fish and Wildlife Service and the Fish and Game Department. Mitigation and compensation measures would be based on the aquatic and terrestrial evaluations.

This option is only viable if the state has effective methods to ensure that the recommended conditions would be adopted by the Corps. In addition there should be sound reasons for believing that modifications in project design and operation can be recommended which will not cripple the peaking capabilities which justify the project.

Implementation of the option would be difficult. An attempt could be made to use the Environmental Coordinating Committee as the vehicle to accomplish the alterations. However, those involved with the committee don't believe much can be accomplished through the committee.

Support of Montana's Congressmen of an authorization bill could be hinged upon project modification in accordance with the state's conditions.



### Option 3. Oppose Construction Pending a Complete Reevaluation

Selection of this option would be based on a recognition that (a) the Corps has failed to demonstrate the need for additional peaking capacity and the economic feasibility of the project, and (b) the project is environmentally degrading and recreational losses due to the project have not been adequately considered.

This option calls for a complete reevaluation of the project's economic feasibility, the existing fluctuation criteria and mitigation measures. The Corps and the state should work jointly on the economic assessment. Construction would be opposed until it is determined that the project is economically feasible, fluctuation criteria are adequate, all mitigation is sufficient and guaranteed, the bald eagle won't be adversely affected, and public sentiment is generally in favor of the project. If these conditions could not be satisfactorily achieved then the project would be reformulated or dropped.

A variation of this option would require that a regional environmental impact statement (EIS) be prepared for the Kootenai River Basin. In light of Troy ASARCO, Northern Lights, and the Libby controversy, it is important that the cumulative effect of these possible actions be identified. Construction at Libby would remain halted while the EIS is prepared. Clearly the selection of an option which recommends extensive, expensive studies is based on the belief that the existing studies are inadequate and that the results of these studies will be valuable in developing a state position on the project and/or reformulating the project.

This option could be implemented by opposing Congressional authorization until studies formulated by the state are completed and demonstrate that the project is worthy of state support.

### Option 4. Do Nothing

This option could be justified by any of the following assumptions:

1. The project if halted will not be revived by Congressional authorization and that this outcome is desirable.
2. No effective means exist to implement the other options since the state has very limited control over federal water projects.
3. The project is desirable, will receive Congressional authorization and no special efforts are required to produce a desirable result.

The implausibility of assumption 2 and the uncertainty about assumptions 1 and 3 make this an unattractive option.

### Recommendation

Opponents to the project are vocal, numerous, well-organized and they've won the first battle. Supporters of the project, although they may not be any fewer than the opponents, have been much less noticeable. Until last Saturday, events were going their way and no display of support was necessary. Sept. 9,

The Department of Natural Resources and Conservation will hold hearings in the Libby area to obtain public opinion on the project. The growing controversy makes it increasingly important that public opinion be carefully considered before any option is selected. Subsequent to those hearings, a state position will be recommended to the Governor.

